Amendments to Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.(Currently amended) A method of optimizing the optical characteristics of optical quality silica films in the manufacture of a silica waveguide, wherein said silica films are deposited by plasma enhanced chemical vapor deposition (PECVD) at a temperature between 100 and 650°C in the presence of SiH_4 as a silicon-containing gas, N_2O as an oxygen-containing gas, and N_2 as a carrier gas, each said gas having a flow rate and wherein said silica films are free of boron and phosphorus, comprising:

a) setting the flow rates of said silicon-containing gas, said oxygen-containing gas, and said carrier gas at respective predetermined fixed values;

b) depositing silica films over a range of different total deposition pressures for said gases between 2.0 and 2.6 Torr at said predetermined fixed values;

c) subjecting the deposited silica films to a post-deposition low temperature treatment between 400° to 1200°C to minimize the presence of $Si\text{-}O_x\text{-}H_y\text{-}Nz$ compounds in said deposited silica films;

d) comparing the FTIR spectra of the silica films deposited at different total deposition pressures to find the optimum deposited silica film with the least amount $Si\text{-}O_x\text{-}H_y\text{-}Nz$ compounds present after said low temperature treatment; and

e) depositing an optimized silica film in the silica waveguide by controlling said total deposition pressure of said optimized silica film to the total deposition pressure at which the optimum deposited silica film identified in step *d* was deposited while said flow rates remain at said predetermined fixed values.

2.(canceled)

3.(Previously presented) A method as claimed in claim 1, wherein said low temperature treatment is about 800°C.

4.(cancelled)

5.(cancelled)

6. (Previously presented) A method as claimed in claim1, wherein said silica films are deposited in a vacuum chamber whose pressure is maintained by a vacuum pump having a controllable pumping speed, and said total deposition pressure is maintained by controlling said pumping speed.

7. (cancelled)

8.(Previously presented) A method as claimed in claim 1, wherein said silica films are deposited at a temperature of about 400°C.

9.(cancelled)

10.(canceled)

11.(canceled)

12.(canceled) .

13.(canceled)

14.(Previously presented) A method as claimed in claim 1, wherein the predetermined fixed values for the flow rates of said gases are selected to optimize the quality of the deposited films after said low temperature treatment.

15.(Previously presented) A method as claimed in claim 1, wherein the predetermined fixed values of the flow rates of said gases are selected to optimize the quality of the deposited films after said low temperature treatment.

16.(original) A method as claimed in claim 15, wherein the flow rate of the SiH_4 is about 0.2 std liter/min.

17.(original) A method as claimed in claim 16, wherein the flow rate of the N_2O is about 6.00 std liter/min.

18.(original) A method as claimed in claim 17, wherein the flow rate of the N_2 is about 3.15 std liter/min.

19.(Canceled)

20.(canceled)

21.(Previously presented) A method of depositing an optical quality silica film on a substrate of a silica waveguide in the manufacture of optical multiplexers and demultiplexers wherein said optical quality silica film is deposited on said substrate at a temperature between 100 and 650°C by plasma enhanced chemical vapor deposition (PECVD) in the presence of SiH_4, N_2O, and N_2, each said gas having a flow rate, and wherein said silica film is free of boron and phosphorus, comprising:

a) fixing the flow rate of said SiH_4, N_2O, and N_2 at about 0.2 std liter/min, 6.0 std liter/min., and 3.15 std. liter/min respectively;

b) depositing the silica film on said substrate at a total deposition pressure of about 2.4 Torr; and

c) subjecting said deposited silica film to a low temperature treatment at about 800°C to minimize the presence of Si-O_x-H_y-Nz compounds.

22.(previously presented) A method as claimed in claim 21, wherein said silica film is deposited in a vacuum chamber whose pressure is maintained by a vacuum pump having a controllable pumping speed, and said total deposition pressure is maintained by controlling said pumping speed.

23.(Previously presented) A method as claimed in claim 21, wherein said silica film is deposited at a temperature of about 400°C.

Claims 24 to 27 are cancelled.